

REMARKS

The specification is amended herein. In addition, claims 1, 13, 65, 67, 69, 74, 75, 81-83, 86, 89, 91-93, 110, 113, 116, 117, 125, 127-131, 140, 222, 223, 237, 253, 254, 313-319, 334-336, 343, 344, 351-353, 355, 358, 356, 360-362, 364, 368-373, 375, 380, 382, 383, 387, 389, and 391 are amended. Moreover, claims 7-12, 53, 54, 77, 78, 363, and 374 are canceled. Claims 13-28, 31-35, 37-52, 55-63, 65, 66, 69-71, 84-87, 90-93, 98-102, 104, 106-108, 113-125, 132-179, 181-216, 218-234, 236-250, 253-256, 272, 309, 316, 320-322, 325-342, 345-350, 357-359, 364, 366, 367, 375, 377-379, 386-390, and 392 are withdrawn. Claims 1, 13-28, 31-35, 37-52, 55-63, 65-67, 69-75, 79-108, 110-256, 272, 309, 313-359, 361, 362, 364-373, and 375-392 are currently pending in the case. Further examination and reconsideration of the presently claimed application are respectfully requested.

Reinstatement of Previously Withdrawn Claims 313-315, 317, 318, 360-362, and 371-373

Previously withdrawn claims 313-315, 317, 318, 360-362, and 371-373 have been reinstated for examination. The claims were inadvertently withdrawn in a response to a previous Office Action because they were mistakenly believed to be directed at non-elected subject matter. However, upon review of the restriction requirement dated June 20, 2005, it was discovered that the subject matter of an elastomer, a filler, an adhesive, a textile material, and a wax have not been restricted. In addition, it was discovered that subject matter capable of catalyzing the hydrolysis of multiple organophosphorus compounds, particularly one or more organophosphorus chemical warfare agents and/or one or more organophosphorus pesticides, has not been restricted.

Objections to the Specification

The specification was objected to for an amendment filed July 12, 2006. In particular, the Examiner deemed the addition of the word "include" in paragraph [0009] as introducing new subject matter. To expedite prosecution, paragraph [0009] has been amended, replacing the

word “include” with the word “are” as was originally filed. Removal of this objection is respectfully requested.

Objection to Information Disclosure Statements

An objection made in a previous Office Action mailed January 12, 2006 to the Information Disclosure Statements filed on 12/16/04 and 11/23/04 was maintained in the current Office Action. It is noted that the objection was properly addressed in the response filed July 12, 2006, particularly by filing, in conjunction with the response, a new IDS properly citing the published U.S. patents and patent applications included in the IDS filed on 11/23/04. In addition, the response noted that the Applicant was diligently working on compiling the information to properly cite the non-patent references included in the IDS's filed on 11/23/04 and 12/16/04. Information Disclosure Statements citing such non-patent references were indeed filed in due course on 9/27/06 and 11/8/06. Acknowledgement of the Information Disclosure Statements filed on 7/12/06, 9/27/06, and 11/8/06 is requested. In addition, the Examiner is respectfully requested to consider the references submitted in such IDS's and return the forms initialized or indicate in some other way that the references cited therein have been considered.

It is noted that a new legible copy of a non-patent reference cited in the IDS filed on 11/23/04 that was deemed illegible by the Examiner was cited in the IDS filed on 11/8/06. The new legible copy is page 33 of the reference referred to as “The PCI 50 & Global Top 10” on the PTO-1449 form of the IDS. The new legible copy does not include the advertisement for the blending/dispersing blades contained on the page originally filed in the IDS of 11/23/04. The new legible copy was obtained from PCI Magazine through their archive retrieval system which does not retain the advertisements which were printed with the noted articles. It is noted that the advertisement for the blending/dispersing blades is not relevant to the subject matter of the captioned case.

In light of the Information Disclosure Statements filed on 7/12/06, 9/27/06, and 11/8/06, removal of the objection to the Information Disclosure Statements filed on 12/16/04 and 11/23/04 is respectfully requested.

Objection to the Claims

Claims 9, 181, 182, and 320 were objected to for reciting non-elected subject matter. As noted above, claim 9 has been canceled rendering rejection thereto moot. To expedite prosecution, claims 181, 182, and 320 were withdrawn in the previous response filed July 12, 2006. It is noted that dependent claims 181, 182, and 320 include species of non-elected subject matter which is encompassed by generic subject matter recited in claims 180 and 319. Claims 181, 182, and 320 were withdrawn from consideration (rather than canceled) such that upon allowance of a generic claim, the claims as directed at non-elected species may be allowed under 37 C.F.R. § 1.141(a). As such, removal of the objection to claims 9, 181, 182, and 320 is respectfully requested.

Section 101 Rejection

Claims 1-6, 8-10, 67, 72-75, 79-83, 88, 89, 94-97, 103, 105, 110-112, 126-131, 217, 251, 252, 319, 320, 351-354, 365, 368-370, 374, 376, 380-385, and 391 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 and 185-195 of U.S. Application No. 10/884,355. Claims 2-6 were canceled in the previous response filed July 12, 2006 rendering rejection thereto moot. In addition, claims 8-10 and 374 are canceled herein rendering rejection thereto moot. In response to the provisional rejection of the other claims, a terminal disclaimer is submitted in a separate paper to obviate the double patenting rejection in accordance with 37 C.F.R. § 1.321(c). The terminal disclaimer is believed to be sufficient to overcome any assertion of judicially created obviousness-type double patenting between the present claims and the claims of U.S. Application No. 10/884,355. Accordingly, removal of the provisional rejection under 35 U.S.C. § 101 is requested.

Applicant respectfully traverses the Examiner's position on page 4 of the Office Action that the citation of U.S. Application No. 10/855,344 for the provisional rejection of claims under 35 U.S.C. § 101 made in a previous Office Action mailed January 12, 2006 was an obvious typographical error. In particular, it is noted that the two serial numbers in question (i.e.,

10/884,355 and 10/855,344) are quite different, as three of the eight digits are transposed and one digit is wrong. Applicant respectfully notes assuming corrections to errors of such degree may potentially compromise the scope of any patent issuing from the application at hand and, therefore, does not wish nor should be expected to make such assumptions with regard to what the Examiner may have intended to cite.

Section 112, 2nd Paragraph, Rejection

Claims 1, 8-10, 67, 72-75, 79-83, 88, 89, 94-97, 103, 105, 110-112, 126-131, 217, 251, 252, 319, 320, 323, 324, and 383-385 were rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. As noted above, claims 8-10 are canceled rendering rejection thereto moot.

The Examiner states the term “configured” in claims 1 and 319 renders the claims indefinite. With exception to claims 383-385, the other claims that have been rejected under 35 U.S.C. § 112, second paragraph, have been deemed indefinite for being dependent upon rejected independent claims 1 and 319. To expedite prosecution, claims 1 and 319 as well other claims containing the term “configured” have been amended to remove the term. It is noted, however, Applicant contends the term “configured” does provide a standard for ascertaining the requisite structure of claim limitations and one of ordinary skill in the art would be reasonably apprised of the scope of the invention with the use of such a term. For instance, the term “configured” may denote the claimed enzymatically active organophosphorus hydrolase includes structural and compositional limitations for catalyzing the hydrolysis of specific organophosphorus compounds, such as those recited, for example, in claims 355 and 356.

The Examiner further deemed the phrase “lasting upon a surface” in claims 110 and 383 indefinite, particularly citing the word “lasting” as being relative. Claims 111, 384 and 385 have been deemed indefinite for being dependent upon rejected claims 110 and 383. In response thereto, claims 110 and 383 have been amended to remove the word “lasting.” It is believed such an amendment addresses the concerns expressed in the Office Action.

For at least the reasons noted above, claims 1, 110, 319, and 383 as well as claims dependent thereto are definite. Accordingly, removal of this rejection is respectfully requested.

Section 112, 1st Paragraph, Rejections

Claims 1, 8-10, 67, 68, 72-75, 79-83, 88, 89, 94-97, 103, 105, 110-112, 126-131, 180-182, 217, 251, 252, 319, 320, 323, 324, 343, 344, 351-354, 365, 368-370, 374, 376, 380-385, and 391 were rejected under 35 U.S.C. § 112, first paragraph, for the specification failing to provide enablement for the subject matter of the claims. In addition, with exception to claims 68, 343 and 344, such claims were further rejected under 35 U.S.C. § 112, first paragraph, for containing subject matter which was not described in the specification in such a way to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention. As noted above, claims 8-10 and 374 are canceled rendering rejection thereto moot.

To expedite prosecution, the claims of the case have been amended to remove the term “approximately.” Such amendments address the concerns expressed on page 7 and 8 of the Office Action regarding claims 67, 74, 75, 83, 89, 110-112, 127-131, 319, 320, 351-353, 365, 368-370, 374, 376, 380-385, and 391.

To further expedite prosecution, the claims of the present case have been amended with a limitation which the Examiner acknowledges as being enabled by the specification. In particular, the claims have been amended to specify the claimed coatings comprise an enzymatically active organophosphorus hydrolase. The Examiner states on page 11 of the Office Action mailed January 12, 2006 that the specification is “... enabling for a paint comprising enzymatically active organophospho hydrolase”. In the present Office Action, the Examiner acknowledges “... the specification may be enabling for a broader scope of coatings than just a paint.” Consequently, as acknowledged by the Examiner, the specification enables one skilled in the art to make and use the limitations of the present claims. In addition, it is asserted that the specification conveys to one skilled in the art that the inventor had possession of the claimed subject matter and, therefore, the written description requirement is satisfied for the present claims.

For at least the reasons noted above, the claims of the present case are believed definite. Accordingly, removal of this rejection is respectfully requested.

Section 102 Rejection

Claims 1, 8-10, 67, 68, 72, 88, 89, 94-97, 110-112, 126, 180-182, 217, 319, 320, 323, 324, 343, 351-354, 365, 368-370, 374, 376, 380-385, and 391 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,998,200 to Bonaventura et al. (hereinafter referred to as “Bonaventura”). Claims 1, 8-10, 67, 72-75, 79, 80, 82, 83, 88, 89, 94-97, 103, 105, 110-112, 126-131, 180-182, 217, 252, 319, 320, 323, 324, 343, 351-354, 365, 368-370, 376, 380-385, and 391 were rejected under 35 U.S.C. § 102(b) as being anticipated by a paper entitled “*Alteromonas* prolidase for organophosphorus G-agent decontamination”, published in *Chemico-Biological Interactions*, and written by Cheng et al. (hereinafter referred to as “Cheng”). As noted above, claims 8-10 and 374 are canceled rendering rejection thereto moot. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. Of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP 2131. Neither Bonaventura nor Cheng disclose all limitations of the pending claims, some distinctive limitations of which are set forth in more detail below.

Bonaventura and Cheng, taken alone or in combination, do not teach, suggest or provide motivation to create a paint with an enzymatically active organophospho hydrolase. Amended independent claim 1 recites: “[a] paint comprising an enzymatically active organophospho hydrolase.” Amended independent claims 319 and 368 include a similar limitation for a surface treatment and a coating, respectively. There is no teaching or suggestion within Bonaventura that the antifouling paints described therein include enzymatically active organophospho hydrolases. In fact, there is no mention of organophosphorus (OP) compounds within Bonaventura, much less configuring paints to detoxify such compounds. As such, Bonaventura does not anticipate the limitations of claims 1, 319 and 368. Applicant traverses the Examiner’s statement on page 10 of the Office Action that “The coatings of Bonaventura et al comprise an organophosphorus acid anhydrolase (Table 3).” In particular, no compound listed

in Table 3 or any other part of Bonaventura may be classified as an organophosphorus acid anhydrolase. Furthermore, no other type of OP compound detoxifying agent is listed in Table 3 or any other part of Bonaventura.

Contrary to Bonaventura, Cheng teaches enzymes which are configured to detoxify organophosphorus compounds. As noted in a response to the Office Action mailed January 12, 2006, however, Cheng fails to disclose incorporating such enzymes within a paint. As such, Cheng fails to anticipate the limitations of claim 1. As further noted in a response to the Office Action mailed January 12, 2006, Cheng teaches the enzymes taught therein remain active in the presence of a variety of substances other than paint (see Table 2). None of such substances are even remotely similar in composition or consistency to paint. Therefore, it would not be obviousness to one skilled in the art to incorporate the enzymes taught in Cheng within a paint based on the teachings of Cheng.

Furthermore, it would not be obvious to one skilled in the art to incorporate the enzymes taught in Cheng within a paint in view of Bonaventura. In particular, Bonaventura references biologically active chemicals (some of which are enzymes, particularly proteases) that are specifically configured to hinder the attachment and growth of bacteria to prevent fouling of an aquatic apparatus. Such an objective and enzyme function are completely different from detoxifying OP compounds. As such, Bonaventura does not provide motivation to modify Cheng to place the enzymes taught therein in paint. The fact that both references teach the use of enzymes for their objectives does not substantiate a basis for obviousness. In particular, enzymes by definition refer to substances for catalyzing a chemical reaction and, thus, entail a broad spectrum of applications and specificity. Citing use of a specific type of enzyme (e.g., proteases, as taught in Bonaventura) for a particular function within a specific medium does not necessarily render a different type of enzyme (e.g., prolidases, as taught in Cheng) configured for a completely different function compatible, much less effective, in the same medium.

Neither Bonaventura nor Cheng disclose a surface treatment or a coating with an enzymatically active organophospho hydrolase which is capable of exhibiting catalyzing activity in the surface treatment at one or more instances after the surface treatment has

been formed with the enzymatically active organophospho hydrolase for greater than approximately 1 week. Independent claims 319 and 368 recite such limitations for a surface treatment and a coating, respectively. As noted on page 10 of the Office Action, neither Bonaventura nor Cheng specifically disclose that their enzymes are effective for more than one week in the substances described therein. The Examiner, however, surmises that a skilled artisan would believe the enzymes would be inherently so effective in the substances. Such conjecture is respectfully traversed. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristics. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) MPEP 2112. In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) MPEP 2112.

Cheng teaches that activity of enzymes in the presence of the substances described therein is significantly reduced (up to 50%) after a 24 hour period (*see* Fig. 3 and the first partial paragraph on page 461 of Cheng). There is no teaching or suggestion within Cheng of analyzing the activity of the enzymes within the substances for longer periods of time. As noted in a response to the Office Action mailed January 12, 2006, such a short term analysis suggests that substances described therein are intended for near immediate use and, therefore, there is no desire to mix the enzymes with the substances for long term enzyme activity, such as greater than approximately 1 week. As such, Cheng does not support the Examiner's presumption of inherency (i.e., the basis for inherency does not flow from the teachings of the prior art as necessitated to provide a *prima facie* case of obviousness).

For at least the reasons stated above, neither Bonaventura nor Cheng anticipates the limitations of claims 1, 319, and 368. In addition, neither Bonaventura nor Cheng provides motivation to render the limitations of claims 1, 319, and 368 obvious. Therefore, claims 1, 319, and 368 are patentably distinct over Bonaventura and Cheng. In addition, dependent claims 67, 68, 72-75, 79, 80, 82, 83, 88, 89, 94-97, 103, 105, 110-112, 126-131, 180-182, 217, 252, 320, 323, 324, 343, 351-354, 365, 369, 370, 376, 380-385, and 391 are believed patentably distinct from

Bonaventura and Cheng for at least the same reasons as their respective base claim. Accordingly, removal of this rejection is respectfully requested.

Section 103 Rejection

Claims 81 and 251 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bonaventura or Cheng in view of pages 6, 12-19, 127, 165, and 288-290 of *Paints, Coatings, and Solvents, Second Completely Revised Edition* by Stoye et al. (hereinafter referred to as "Stoye"). As noted above, neither Bonaventura nor Cheng teaches, suggests, or provides motivation to teach the limitations of independent claim 1. Furthermore, Stoye does not teach or suggest a paint with an enzymatically active organophospho hydrolase. As such, Stoye cannot be used to overcome the deficiencies of Bonaventura and Cheng to teach the limitations of claim 1 nor claims 81 and 251 dependent therefrom. Accordingly, removal of this rejection is respectfully requested.

CONCLUSION

This response constitutes a complete response to all of the issues raised in the Office Action mailed May 18, 2007. In view of the amendments and remarks herein, Applicants assert that pending claims 1, 13-28, 31-35, 37-52, 55-63, 65-67, 69-75, 79-108, 110-256, 272, 309, 313-359, 361, 362, 364-373, and 375-392 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned earnestly requests a telephone conference.

The Commissioner is authorized to charge any fees which may be required, or credit any overpayment, to deposit account no. 50-1085.

Respectfully submitted,

/C. Steven McDaniel/

C. Steven McDaniel

Reg. No. 33,962

Attorney for Applicant

Customer No. 62754

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